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STORABLE PASTE FOOD AND METHOD OF MANUFACTURE THEREOF

[Nerisei Hozone Shokuhin Oyobi Sono Seizo Hoho]

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Specification

1. Title of the invention

STORABLE PASTE FOOD AND METHOD OF MANUFACTURE THEREOF

2. Claims

1. A storable paste food, characterized by being comprised of a basic raw material selected from fruits, edible rootstalks, vegetables, cereals, seaweeds, animal milk and its processed product, Coke drink and carbonated drink, lactic acid bacteria, and chocolate, thick malt syrup, sugar, sometimes citric acid, solidifier, and water.

2. A method for manufacturing the storable paste food, characterized by the fact that a basic raw material selected from fruits, edible rootstalks, vegetables, cereals, seaweeds, animal milk and its processed product, Coke drink and carbonated drink, lactic acid bacteria, and chocolate is processed into a sauce-like fluid or powder; thick malt syrup, sugar, and if necessary, citric acid are added to it to form a basic raw material mixture; water is added to said mixture and boiled down at a temperature of 100-110°C into a concentrated fluid so that

¹ Numbers in the margin indicate pagination in the foreign text.

it may not be scorched; a high-temperature solidifier solution separately prepared by heating an aqueous solidifier solution is mixed with the above-mentioned concentrated fluid; and the mixture is cast into a molding mold, cooled, solidified in a soft state which is difficult to be tackified, and cut into an appropriate size.

3. Detailed explanation of the invention

(Technical field of the invention)

The present invention pertains to a storable paste food, which cannot lose its flavor and aroma, can be stored over a long term, and is always in a soft edible state, compared with foods and drinks, for example, solid foods such as fruits, vegetables, and cereals and liquid foods such as milks that cannot generally be stored over a long term and is not necessarily convenient to carry, and its manufacturing method.

(Background of the invention)

Fruits are delicious and have sufficient nutrition, vitamins, etc., however they cannot generally be stored, and some of them, for example, dried persimmons, etc., are hardened with time and cannot be eaten. Also, even if milks, etc., are refrigerated, they cannot be stored for a long time and cannot be carried unless there is a special container such as box and

bottle for storing them, so that they become bulky, causing an inconvenience. Vegetables and cereals cannot always be easily/2 stored in an edible state over a long term.

(Purpose of the invention)

Therefore, the purpose of the present invention is to provide a storable paste food containing fruits, vegetables, cereals, milks, etc., as a basic raw material that holds the original flavor, aroma, color, etc., and is always stored in an edible soft state over a long term.

Also, another purpose of the present invention is to provide a method for manufacturing the above-mentioned storable paste food.

(Outline of the invention)

The storable paste food of the present invention broadly includes a basic raw material selected from fruits, edible rootstalks, vegetables, cereals, seaweeds, animal milk and its processed product, Coke drink and carbonated drink, lactic acid bacteria, and chocolate. The basic raw material is a material that holds its original flavor, aroma, hue, etc., and gives its food basic properties, even after it is processed into a storable food.

As the fruits of the basic raw material, cultured fruits and natural fruits such as net melon, prince melon, melon, salad

melon, pear, watermelon, persimmon (including dried persimmon), plum, almond, cocoa, slivervine, Ezo strawberries, bush warbler vine of walnut, lotus cups, cowberry (Pureps[transliteration]), Kalins[transliteration] (red, black), oleaster, cherry, kiwi, mulberry, tomato, pumpkin, blueberry, blackberry, fig tree, sweet brier, potato, orange, apple, peach, strawberry, lemon, Japanese plum, gooseberry, and coffee bean can be used.

As the usable edible rootstalks, carrot, potato, edible lily root, spherical root of tulip, beet, onion, sweet potato, ginger, Japanese mint, ginseng, Magnolia hypoleuca (extract), shiitake mushroom, Pholiota nameko, champignon, Fomes japonicus, etc., are included.

As the vegetables, carrot leave, Japanese radish leave, spinach, parsley, Chiso[transliteration] (both blue leave and red leave), lettuce, butterbur (Ezo butterbur, Kyo butterbur), Chinese cabbage, asparagus, cabbage, dandelion, Taranbo[transliteration], honewort, Fukinoto[transliteration], edible rhubarb (Rubabu[transliteration]), hydrangea vine, etc., can be used.

As the cereals, corn, sweet corn, adzuki bean, rice, brown rice, whole rice, soybean, buckwheat, etc., can be used.

As the seaweeds, Konpu[transliteration], wakame seaweed, etc., can be used.

As the animal milk and its processed product, milk, goat milk, degreased milk, butter, cheese, and lactated drink can be used.

The Coke drink and carbonated drink can be a basic raw material for holding its original flavor. The carbonate drink gives a beautiful appearance of the product (see Application Example 11) as well as the flavor. Similarly, chocolate and lactic acid bacteria can also be a basic raw material in the present invention.

This basic raw material is used in a raw state or boiled with water, softened, and ground down or used as a powder or used by extracting in a liquid shape such as juice and extract or used in a liquid state from the beginning. The raw material can also be used in a jam or bean jam state, and part of fruits and vegetables can also be put in an original shape into a stored food.

In addition to the basic raw material, thick malt syrup and sugar are included as essential components. As the thick malt syrup, a colorless transparent thick malt syrup is optimum to utilize the hue of the basic raw material, however sometimes, a thick malt syrup made of barley can also be used. As the sugar, polysaccharides such as Japanese refined sugar and sucrose starting with beet sugar can be adopted, however a pure white

sugar is preferable to maintain the color of the basic raw material.

In addition to the basic raw material and the above-mentioned two essential components, a citric acid can be included. Since this additive component gives a light sourness to the product and softens (reduces) the rigidity of a solidifier (agar), there is an effect that softens the sense of food of the product. However, in case the basic raw material exhibits a sourness, it can also be omitted, and it can also be replaced with other acidifiers such as lactic acid, acetic acid, glacial acetic acid, ascorbic acid, etc. However, since the citric acid has no taste and can be mixed in a powder shape, the boiling-down time is short. Thus, the citric acid is /3 appropriate.

The mixture of the basic raw material, the essential components, and the above-mentioned additive component is called a basic raw material mixture for convenience. This basic raw material mixture is mixed with new water for boiling-down in addition to the water include and added up to now and boiled down into a concentrated fluid-shaped substance. A solidifier is used to harden the concentrated fluid-shaped substance. As the solidifier, there are agar (powder agar, bar agar), pectin,

jelly, albumen, etc., and the powder agar is appropriate in terms of easy dissolution in water and easy measurement.

In addition to the above components, the storable paste food of the present invention can optionally include edible perfume, lemon powder or liquid, brandy, etc.

The method for manufacturing the present invention is generally explained as follows.

First, a basic raw material to be used is selected from the above-mentioned basic material group. In principle, the basic raw material is one kind, however two kinds or more can also be used in combination. The selected basic raw material is well cleaned except for liquid, powder, jam shape, etc., and inedible parts such as shells and seeds are removed.

Next, the basic raw material is heated and softened in accordance with the properties of the basic raw material. Its purpose is to assist the change of the basic raw material to a sauce-shaped fluid by stirring using mixer, etc., and it is generally required for edible rootstalks (carrot, potato, etc.) and cereals (rice, soybean, corn, etc.). Usually, the rice may be boiled rice or may be boiled in a gruel shape or may be a sweet drink shape. Usually, the basic raw material of fruits or liquids does not require a softening process by heating. Since

the lactic acid bacteria and the lactated drink utilize lactic acid bacteria, they must be heated.

Next, the basic raw material except for liquids is changed to a sauce-shaped fluid by stirring using mixer, etc., or if the basic raw material is a dry raw material, it is changed to a powder. The basic raw material obtainable as a powder from the beginning does not require this process.

Also, in case the basic raw material is boiled with water to heat and soften them, if the taste and the flavor of the raw materials remain in the liquid, it may be mixed in a stirring process. The extra water is vaporized in a boiling-down process. Also, to strongly exhibit the color of the basic raw material to the product and to exert the transparency, the raw material may be filtered as an extract and adopted as a basic raw material.

The sauce-shaped, powder-shaped, or liquid basic raw material prepared in this manner is then mixed with two essential components of thick malt syrup and sugar, and the acidifier such as citric acid being added as needed. The typical mixture ratio (weight) is about 50-300 parts thick malt syrup, 100-500 parts sugar, and about 0-6 parts acidifier such as citric acid to about 10-300 parts basic raw material.

The basic raw material mixture formed in this manner is sauce shape or a slightly hard fluid shape, and in any cases, after adding a necessary amount of water, it is sent to the next boiling-down process. The water being added at this step prevents scorching at the boiling-down step, and the amount may be increase and decreased in consideration of the amount of water carried from the above-mentioned heating softening process or the liquid basic raw material itself. Water up to about 300 parts (weight) can be used in the above-mentioned mixture ratio range. In the boiling-down process, the basic raw material may be put into a crucible-shaped container equipped with a stirring means and boiled-down from room temperature to 100-110°C, appropriately about 108°C. A homogenous concentrated fluid-shaped substance is obtained while preventing the material from being scorched. Also, when fruits, etc., are mixed in their original shape (or cut segments) and when lactic acid bacteria are charged as a basic raw material, it is preferable not to put them into the boiling-down process.

Separately or simultaneously, a solidifier such as agar is dissolved in water or warm water, and water is vaporized to the degree of non-scorching by heating. The solidifier is kept warm by an appropriate means such as boiling so that it may not be cooled and hardened.

The solidifier solution is added and mixed with the concentrated fluid-shaped substance of the above-mentioned boiling-down process after stopping the heating. If necessary, when a flavor is added, it may be charged after the temperature of the mixture is slightly lowered. Also, at least part of lactic acid bacteria, lactated drink, etc., may be mixed at 1/4 this step. In case all the lactic acid bacteria are charged at this step, the above-mentioned "basic raw material" is a mixture of the essential components (and the additive component).

Next, before the mixture of the concentrated fluid-shaped substance and the solidifier solution are cooled and solidified, they are cast into a molding mold such as dish-shaped shallow flat mold, cooled, and solidified. When the solidification is advanced and a soft semisolid shape is formed to the degree that it is not easily adhered by pressing using the fingers, it is cut into appropriate size and shape, and the cut segment is appropriately packaged as a product. If the molding mold itself is partitioned into fine sections, the cutting work can be omitted. Also, the cut fine segment may be covered with a powder wafer or other dry powders such as starch, or after it is cut into a caramel shape size and covered with a dry powder, it can be put into a small box and obtained as a product.

Since the storable paste food of the present invention manufactured as mentioned above can be stored without losing its softness or changing the quality over a long term such as 12 months or more while holding the taste, flavor, and color of the basic raw material, it is very suitable for a storable food or an emergency food. The flavor is little dissipated since it is confined by the solidifier, and though its smell is not much emitted from the appearance, the flavor is radiated in the mouth by chewing. According to the present invention, since the liquid drink can be simply changed to a solid food, the food is conveniently carried and stored. Also, when eating it, its package is simply peeled off, and the food is very lightly put into the mouth. Also, the taste and the palate are different from those of the conventional foods solidified with sugar or foods in which an antiseptic is included. This food is smooth, has a flavor, and is safe and very pleasant.

(Embodiments of the invention)

Next, application examples of the present invention are explained.

Application Example 1

In this example, an example in which a net melon is used as a basic raw material and processed into a storable paste food is shown.

The weight ratio of all the materials used is as follows.

Materials	Weight (parts)
Melon	50 (note 1)
Thick malt syrup	150
Sugar	150
Citric acid	3
Water	50
Agar	9.6 (note 2)
Flavor	appropriate amount (note 3)

(Note 1) Peel and seeds were removed.

(Note 2) Dissolved in 250 parts water.

(Note 3) An appropriate amount of perfume, lemon, brandy, etc., are used, if necessary.

The melon is washed, its peel is off, and its seeds are removed. Then, a necessary weight is applied to a mixer and processed into a sauce-shaped fluid. Thick malt syrup, sugar, and citric acid are added to it and mixed, and 50 parts water is added to the mixture, stirred so that they may not be scorched, and boiled down up to about 108°C.

Agar is separately dissolved in 250 parts water, heated, and water is vaporized to the degree that it may not be scorched. Then, it is kept warm by boiling so that it may not be cooled and hardened.

After stopping the heating of the above-mentioned boiled-down material, the molten agar kept warm is added and mixed with it. After the temperature of the mixture is lowered, a small amount of flavor is added. While its entire part is cooled and is still in a fluid shape, it is cast into a dish-shaped flat shallow container. It is held and cooled, hardened to the degree that it is not adhered by pressing using the fingers, cut into a strip shape or other appropriate shapes and sizes, and packaged as a product.

This product was not dried and hardened, even with the lapse of several months, had an elasticity, and had melon aroma and flavor.

Application Example 2

This example is an example of a storable paste food of an Ezo strawberry.

Materials	Weight (parts)
Ezo strawberry	300
Thick malt syrup	150
Sugar	225
Citric acid	2
Water	50
Agar	9.6 (note 1)
Flavor	appropriate amount (note 2)

(Note 1) Dissolved in 250 parts water.

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(Note 2) Perfume, brandy, etc.

A product was manufactured by a method similar to the method of the above-mentioned example except for removing the peel and the seeds.

This product was a soft food having the taste and flavor of the Ezo strawberry after several months. The grains of the seeds of the strawberry are dispersed, and the tooth touch is good.

Application Example 3

This example is an example in which a Japanese plum is a basic raw material.

Materials	Weight (parts)
Japanese plum	100 (note 1)
Thick malt syrup	150
Sugar	325
Citric acid	0
Water	50
Agar	11.3 (note 2)

(Note 1) Peel and seeds were removed.

(Note 2) Dissolved in 250 part water.

A product was manufactured by a method similar to the method of Application Example 1 except for not using the citric acid.

This product was a soft storable food in which the sourness and the flavor of the Japanese plum were held.

Application Example 4

This example is an example of a soft storable paste food of a vegetable.

Materials	Weight (parts)
Ezo strawberry	300
Thick malt syrup	150
Sugar	225
Citric acid	2
Water	50
Agar	9.6 (note 1)
Flavor	appropriate amount (note 2)

(Note 1) Dissolved in 250 parts water.

(Note 2) Perfume, brandy, etc.

A well washed carrot (only roots) is boiled in an appropriate amount of water, applied to a mixer, and processed into a sauce shape. Thick malt syrup and sugar are added to it and mixed, and 50 parts water is added to the mixture and boiled

down similarly to Application Example 1. Thereafter, the sequence is the same as that of Application Example 1.

This product was a sweet soft storable food having the flavor of the carrot.

Application Example 5

This example is an example in which a liquid is processed into a solid storable paste food.

Materials	Weight (parts)
Magnolia hypoleuca extract	100
Thick malt syrup	150
Sugar	225
Water	50
Agar	10 (note 1)

(Note 1) Dissolved in 250 parts water.

Thick malt syrup and sugar are added and mixed with a Magnolia hypoleuca extract (liquid), and 50 parts water is added to the mixture and boiled down similarly to Application Example 1. Thereafter, the sequence is similar to that of Application Example 1.

This product has a slightly bitter taste and a sap smell. The color is brown to thin yellow and transparent.

Application Example 6

This example is an example in which an Ezo strawberry extract was used as a liquid basic raw material.

Materials	Weight (parts)
Ezo strawberry extract	200
Thick malt syrup	150
Sugar	225
Citric acid	2
Water	50
Agar	9.6 (note 1)

(Note 1) Dissolved in 250 parts water.

A product is manufactured in the same sequence as that of Application Example 5 except for adding thick malt syrup, sugar, and citric acid.

This product had a flavor and a taste similar to those of the product of Application Example 2, however there were no grains. Also, the transparency was high.

Application Example 7

This example is an example in which the following materials were processed into a storable paste food by a sequence similar to that of Application Example 2.

Materials	Weight (parts)
Yellow strawberry	300
Thick malt syrup	150

Sugar	225	
Citric acid	3	/6
Water	50	
Agar	9.6 (note 1)	
Flavor	appropriate amount	

(Note 1) Dissolved in 250 parts water.

A storable paste food in which grains similar to a raw yellow strawberry were dispersed was obtained.

Application Example 8

Instead of a raw yellow strawberry, a yellow strawberry extract was used.

Materials	Weight (parts)
Yellow strawberry extract	100
Thick malt syrup	150
Sugar	225
Citric acid	3
Water	50
Agar	9.6 (note 1)
Flavor	appropriate amount

(Note 1) Dissolved in 250 parts water.

The manufacture sequence was similar to that of Application Example 6, and a similar product was obtained.

Application Example 9

The following materials were processed in a sequence similar to that of Application Example 2.

Materials	Weight (parts)
Strawberry	300
Thick malt syrup	150
Sugar	225
Citric acid	1.5
Water	50
Agar	9.6 (note 1)
Flavor	appropriate amount (note 2)

(Note 1) Dissolved in 250 parts water.

(Note 2) Perfume and brandy

A storable paste food that had a taste and a flavor similar to those of a raw strawberry and had a tooth touch of grains was obtained.

Application Example 10

An example in which a storable paste food is manufactured using a milk as a liquid basic raw material is shown.

Materials	Weight (parts)
Milk	150
Thick malt syrup	150
Sugar	225
Agar	11.3 (note 1)

(Note 1) Dissolved in 250 parts water.

Thick malt syrup and sugar are added to a milk and boiled down up to about 108°C without adding water so that it may not be scorched. An agar prepared similarly to Application Example 1 was added to it, poured into a flat container, and hardened.

A soft storable food that is milky white and opaque and has a taste and a flavor of the milk when chewing was obtained.

Application Example 11

An example in which a Coca Cola is used as a liquid basic raw material is shown.

Materials	Weight (parts)
Coca Cola	100
Thick malt syrup	150
Sugar	225
Water	50
Agar	11.3 (note 1)

(Note 1) Dissolved in 250 parts water.

The manufacture sequence is similar to that of Application Example 10 except for adding thick malt syrup and sugar to the Coca Cola and boiling it down while adding 50 parts water so that it may not be scorched.

In the product of this example, a thin film with a silver color due to a carbonic acid is formed on the surface, and its

appearance is beautiful. When the product is chewed, the smell of the Coca Cola is emitted.

Also, if a colorless transparent clear soda pop as a carbonated drink is mixed with a basic raw material such as melon, a delicious storable food that has a fruit flavor included a thin film with a silver color and is beautiful in the appearance is obtained.

Application Example 12

An example in which a powder lemon is used as a basic raw material is shown.

Materials	Weight (parts)
Lemon powder	100
Thick malt syrup	150
Sugar	225
Water	50
Agar	10 (note 1)

(Note 1) Dissolved in 250 parts water.

Thick malt syrup and sugar are added to the lemon powder, and 50 parts water is added to it and boiled down at about 108°C. After stopping the heating, an agar liquid prepared similarly to Application Example 1 is mixed and cast into a flat container. After hardening, it is appropriately cut.

The lemon powder itself is not edible, however if it is processed by this method, a soft storable food with a lemon flavor is obtained.

Application Example 13

An example in which a Japanese plum jam is used as a basic raw material is shown.

Materials	Weight (parts)
Japanese plum jam	200
Thick malt syrup	150
Sugar	225
Water	50
Agar	11.3 (note 1)

(Note 1) Dissolved in 250 parts water.

Thick malt syrup and sugar are added to the Japanese plum jam, and 50 parts water is added to it and boiled down similarly to Application Example 12. An agar liquid is added to it, cast into a mold, and cut.

Though the jam itself cannot be stored over a long term, if it is processed as shown in this example, a storable food at normal temperature over a long term is obtained.

Application Example 14

An example in which a lactated drink is used as a basic raw material is shown.

Materials	Weight (parts)
Yogurt	100
Thick malt syrup	150
Sugar	225
Citric acid	2
Water	50
Agar	9.6
Flavor	appropriate amount

Thick malt syrup, sugar, and citric acid are added to an yogurt, and water is added to it and boiled down at about 108°C. An agar liquid prepared similarly to Application Example 1 is mixed and slightly cooled, and a flavor is added to it, cast into a mold, solidified, and cut.

Also, since lactic acid bacteria are weak to heat, in order to introduce a large amount of lactic acid bacteria into a storable food, a half lactated drink of an initial necessary amount is mixed with thick malt syrup, sugar, citric acid, and water, boiled down, mixed with an agar liquid, and cooled. At that time, the remaining half lactated drink is mixed and stirred.

This storable paste food exhibits an yogurt flavor and includes the lactic acid bacteria.

Application Example 15

An example in which lactic acid bacteria themselves are used as a storable food is shown. Also, other components weak to heat can be processed into a storable food by a similar method.

Materials	Weight (parts)
Lactic acid bacteria	1
Thick malt syrup	150
Sugar	225
Citric acid	2
Water	50
Agar	9.6
Flavor	appropriate amount

First, thick malt syrup, sugar, citric acid, and water are mixed and boiled down at about 108°C. Apart from it, an agar liquid prepared similarly to Application Example 1 is mixed with it and cooled. At that time, a necessary amount of lactic acid bacteria in total and a flavor are mixed and stirred, cast into a mold, solidified, and cut.

Thus, a storable food in which the lactic acid bacteria are live for a long time can be obtained. With the combination of this method and the methods of other Application Examples 1-14, 16, and 17, storable foods with a fruit flavor or a vegetable

flavor in which lactic acid bacterial are included can be prepared.

Application Example 16

An example in which a dried material is used as a basic raw material is shown.

Materials	Weight (parts)
Dry melon	4.6 (note 1)
Thick malt syrup	150
Sugar	225
Citric acid	3
Water	50
Agar	9.6
Flavor	appropriate amount

(Note 1) The freeze-dried melon has good flavor and structure.

An appropriate amount of water is added to a dry melon, boiled, processed into a sauce-shaped fluid by a mixer or processed into a powder in a dry state. Any of them is mixed /8 with thick malt syrup, sugar, and citric acid, and 50 parts water is added to it and boiled down (about 108°C). It is mixed with a separately prepared warm agar liquid and cooled, and a flavor is added to it, cast into a mold, solidified, and cut.

Application Example 17

A manufacture example of a storable paste food in which a rice is used as a basic raw material is shown.

Materials	Weight (parts)
Rice	13 (note 1)
Thick malt syrup	150
Sugar	225
Citric acid	3
Water	50
Agar	9.6
Flavor	appropriate amount

(Note 1) Polished rice, whole rice, or brown rice is used, and an appropriate amount of water is used for boiling. A pressure pot may be used for the brown rice.

The rice is washed, and an appropriate amount of water is added to it, boiled, applied to a mixer, and processed into a fluid shape. Thick malt syrup, sugar, and citric acid are mixed with it, and water is added to it and boiled down. It is mixed with a separately prepared warm agar liquid and cooled, and a flavor is added to it, cast into a flat container, solidified, and cut.

A storable past food that held the nutritive value of the boiled rice and exhibited a flavor was obtained.

(Effects of the invention)

As explained above, according to the present invention, using foods and drinks that cannot usually be stored, a storable paste food with a soft tooth touch, which is stored at normal temperature over a long term such as one year or more, does not generate molds, and does not lower the taste can be obtained. If this product is put into polybag, etc., and sealed, it can be stored in a soft state over a long term. Also, according to the present invention, since liquid substances such as milk can be converted into foods that can be easily stored, can be simply carried, and can be lightly eaten, a large convenience is given. Furthermore, according to the present invention, since it is unnecessary to add antiseptic, etc., this product is also appropriate in terms of food hygiene.